



ISO/IEC JTC1/SC22  
Languages  
Secretariat: CANADA (SCC)

ISO/IEC JTC1/SC22  
**N 1052**

SEPTEMBER 1991

**TITLE:** Minutes of the Fourth  
Plenary Meeting of JTC1/SC22  
Vienna Austria, 1991-09-23/27

**SOURCE:** Secretariat ISO/IEC JTC1/SC22

**WORK ITEM:** N/A

**STATUS:** New

**CROSS REFERENCE:** N1053

**DOCUMENT TYPE:** Minutes of Plenary Meeting

**ACTION:** For information and action as appropriate  
by SC22 Member Bodies.

FOURTH PLENARY MEETING OF  
ISO/IEC JTC1/SC22  
VIENNA AUSTRIA  
1991-09-23/27

MINUTES OF MEETING

1. OPENING OF MEETING

Dr. Peter Skalicky, director of the Technical University of Vienna, opened the meeting at 10:08 by thanking SC22 for having chosen Vienna for the location of this meeting. Dr. Skalicky went on to provide historical information about the city of Vienna and more specifically about the Technical University of Vienna and its location. He also noted that the University had a good scientific reputation.

Dr. Skalicky then stated that he was a "user" rather than a "computer man" and therefore understood the important issues being addressed by this committee.

In closing, he wished all delegates much success during the week ahead and a pleasant and enjoyable stay in Vienna.

A representative of the Österreichisches Normungsinstitut was also at the opening of the meeting to welcome delegates to Vienna.

2. CHAIRMAN'S REMARKS

Mr. Robert Follett, interim chairman of JTC1/SC22, invited all delegates, for whom english is not their first language, to not hesitate, at any point during the meeting, to indicate if they did not understand the point being expressed. He then thanked Member Bodies of SC22 who voted in support of his nomination as chairman of SC22 and said that he would do his best to earn the confidence expressed in him.

Mr. Follett directed delegates' attention to document SC22 N1015 - Secretariat's Report to the JTC1 Plenary and requested all WG Convenors to be clear when reporting on their WG's activities by addressing the following points: project status, liaison requirements, MB participation in all projects. He then noted that since SC22 will now meet in plenary session on an annual basis, Convenors should consider this in the progression of projects. He also noted that there appeared to be some confusion in some WGs regarding the time requirement for the distribution of meeting notice, agenda for meeting and minutes of meeting.

Finally he indicated that the following procedure would be used for approving Resolutions: if a modification for a resolution is tabled, the modification will take precedence; if agreement cannot be reached, then we will revert to the original resolution.

### 3. ROLL CALL OF DELEGATES

The Secretariat proceeded with the roll call of delegates. A list of delegates in attendance is contained in document N1030.

### 4. APPOINTMENT OF DRAFTING COMMITTEE

The following delegates were appointed to the drafting committee:

- S. Jameson - USA
- R. Scowen - UK (chairman)
- W. Wakker - Netherlands
- A. Wallace - USA
- G. Warren - Canada

At this point, the USA suggested the following procedure:

- . a proposed resolution will be tabled in plenary before it is submitted to the drafting committee,
- . it must be reviewed by all members of the drafting committee,
- . a draft version can be prepared by the proposer.

This procedure was endorsed by the committee.

### 5. ADOPTION OF THE AGENDA

The following items were added to the agenda:

- 11.13 Interpretation of Standards
- 12.3 SC22 E-mail requirements

During a discussion of potential Ad Hoc Groups, the following issues for identified:

- 1° Title & Programme of Work of SC22, WG20 and WG21
- 2° Relationship between POSIX, PCTE, Ada Realtime Execution work
- 3° Interpretation
- 4° E-Mail
- 5° Character Set
- 6° Proposed procedure for large NWI
- 7° WG11 projects

The agenda was approved with the above modifications.

### 6. REPORT OF THE SECRETARIAT

#### 6.1 SC22 Project Information

The Secretariat referred delegates to document N1015 and requested all Convenors to provide updating information before the end of this meeting and thereafter, on a regular basis.

#### 6.2 Extension of ballot - CD11404

The Secretariat informed MB that a request to extend the ballot period for this CD had been granted and therefore the revised closing date for this ballot is 1991-11-29.

## 7. ACTIVITY REPORTS

### 7.1 Report from Chairman

The Chairman indicated that aside from the points he presented in his opening remarks, he had nothing else to report. It was noted that he attended the JTC1 meeting on Organization, held in New York, last June.

### 7.2 Report from Vice-Chair Application & Elements Grouping

The Vice-Chairman, Mr. Holka was not in attendance and no report was received.

### 7.3 National Reports

The following National Reports were presented by the Heads of Delegation:

Canada	- N1040
China	- N1037
Finland	- N1046
France	- N998
Germany	- N1041
Japan	- N1033
Netherlands	- N1043
UK	- N1032
USA	- N1031.

Denmark reported on their activities as follows:

Mr. Korn still chairs the national committee.

Denmark is active in C, C++, POSIX, Prolog and WG11 projects.

Mr. G. Schmitt (Austria) provided background information regarding the change in status (from "P" to "O") for Austria. He also reported that he had been appointed by SC22 as its representative to a joint meeting of JTC1 and CCITT which was to be held in Geneva last January, but had been cancelled because of the Gulf crisis.

### 7.4 Liaison Reports - External to ISO/IEC JTC1

There was no organization represented and no report was received.

### 7.5 Report of Liaison Officer

#### 7.5.1 Liason Officer to SC2

A liaison report, prepared by Mr. Ellis, was presented by Mr. Meek. This report is contained in N1051.

Mr. Van Wingen (SC2 Liaison to SC22) outlined the areas within SC2 of potential interest to SC22.

At this point, the Secretariat clarified the role and responsibilities of a liaison officer. Noting Mr. Ellis' resignation as SC22 Liaison Officer to SC2, Mr. Van Wingen volunteered to act as Liaison Officer in both direction.



#### 7.5.2 Liason Officer to SC7

Mr. Côté reported that there were no item, within SC7, of interest to SC22. He noted that the ECMA'S PCTE standard, excuding the C Bindings had also been submitted to SC7 for comments and that SC7 was to submit their comments by November 1, 1991.

#### 7.5.3 Liaison Officer to SC14

Mr. Wakker indicated that he would investigate the requirement for this liaison and report the results of his findings to SC22.

#### 7.5.4 through 7.5.6

There being no liaison officer to SC15, SC18 and SC21, these items were deferred to item 11.3 of the agenda.

#### 7.5.7 Liaison Officer to SC21/WG3

Mr. Korn was not in attendance and no report was presented.

#### 7.5.8 Liaison Officer to JTC1/TSG1

Mr. Isaak outlined the content of his final report which is contained in document N1044. He referred delegates to TSG1's final report on Interface For Application Portability (N961) and recommended that all Convenors read the document. He explained that TSG1 suggested that JTC1 expands the concept and the development of Profiles. Mr. Isaak then suggested that SC22 establish a liaison with JTC1/SGFS (Special Group on Functional Standards). Finally he reported that since TSG1 had completed its task, this liaison was no longer required.

At this point, Denmark suggested that the TSG1 Report be added to the agenda for discussion. As two MB (USA & France) objected to this, it was not done.

#### 7.5.9 Liaison Officer to JTC1/SWG - EDI

Mr. Appel was not in attendance and no report was presented.

#### 7.6 Report from Ad Hoc on Character Handling Requirements

The report from Mr. Ellis (N1049) was presented by Mr. Meek. The USA recommended that all completed work be transferred to WG20. France expressed some concern about the delays in the progression of this work. At this point, there was some discussion about the responsibilities of a Convenor of a WG and his MB, and the responsibilities of a Convenor of a Ad Hoc Group and his MB. This discussion did not lead to any decision.

## 8. WORKING GROUP REPORTS

### 8.1 WG2 - Pascal

Mr. Joslin tabled his report which is contained in N994.

#### 8.1.1 Proposal for a NP on Extended Pascal Binding to LCAS

Following some discussion of this NP (N1034) and the procedure for the tabling of documents at a Plenary session, it was agreed that the NP proposal be revised by WG2 and submitted to SC22 via a consultative ballot.

### 8.2 WG3 - APL

Dr. Dickey tabled his report which is contained in N1035. He reported that, as a result of a change of direction by the WG, the development of Extended APL had slipped one year and therefore the registration of Ext APL as a CD will be postponed.

### 8.3 WG4 - COBOL

Ms. Wallace tabled her report which is contained in N1038. A number of issues detailed in N1038 were discussed. She also indicated that WG4 required some advice vis-à-vis TR10176 and TR10034. To this point Mr. Meek suggested that WGs should report to SC22 when a Guideline was discussed at the WG level and that a record be kept of the reason why the Guideline was not used.

The first session of the Plenary meeting adjourned at 18:12, Sept. 23 and re-convened at 9:06, Sept. 24.

### 8.4 WG5 - Fortran

Ms. Martin tabled her report which is contained in N1008. In addition, she raised the following concerns:

- maintenance of ISO standards, process/relationship between ISO and ANSI
- need for more structure within the WG (vice-chairman)
- bindings to Fortran 90, conversion from Fortran 77 to Fortran 90
- minutes of WG meetings
- appointment of convenor.

Ms. Martin also expressed, on behalf of all WG5 members, her appreciation to Mr. Keith Brannon of ISO/IEC ITTF for his assistance and efforts in ensuring a quick turnaround and publication of the ISO Fortran standard.

Concerning the bindings, she indicated that WG5 was developing a Guideline document on the conversion of bindings.

Concerning the minutes of WG meeting, the Secretariat explained the WG meeting minutes were to be produced within 8 weeks, after the meeting and that issues regarding the meeting were to be raised

within that timeframe, otherwise the minutes were considered approved and did not require formal adoption at the following meeting.

At this point, the WG15 Convenor suggested that SC22 might wish to consider developing Binding Guidelines to all languages, which could be published as a SC22 document.

About the appointment of convenors, the Secretariat explained the difference in the appointment of a convenor for a WG where the development of a standard is delegated to a MB as oppose to one which is operating strictly under ISO rules.

#### 8.5 WG8 - Basic

Dr. Kurtz tabled his report which is contained in N999. The following points were addressed:

- ISO10279 Full Basic is ready to go to the printer
- ISO6373 Minimal Basic should be withdrawn when 10279 is available, in accordance with SC22 Resolution
- Addendum to 10279 is ready for CD registration (awaiting JTC1 approval of the NWI)
- USA is developing a validation test suite for Full Basic
- maintenance of the ISO standard should be delegated to the ANSI committee.

#### 8.6 WG9 - Ada

Dr. Mathis tabled his report of activities which is contained in N1036. It was noted that WG9 had recommended that N982 be registered as a CD and that N927 should also be registered as a CD. Dr. Mathis then requested SC22 to assign project 22.35 to WG9. To this point the Convenor of WG15 indicated that this work might overlap with some WG15 project. It was agreed that WG9 and WG15 would develop a proposal for coordinating this work. Finally, Dr. Mathis noted that Mr. Woodger, involved in SC5 and SC22 WGs, had retired.

#### 8.7 WG11 - Binding Techniques

Mr. Wakker tabled his report which is contained in N1018. Following his report, the UK expressed some concern about the USA comment on CD10967.

There was also a brief discussion about the need of WG11 to meet jointly with SC21/WG6 RPC Rapporteur Group.

##### 8.7.1 Presentation on CLID, CLIP & RPC projects

Mr. Wakker and Mr. Meek presented an overview of WG11 projects. The slides used for their presentation is contained in document VA-10 which is attached to these minutes.



#### 8.9 WG13 - Modula-2

Mr. Woodman tabled Mr. Henry's report, on his behalf. It is contained in N1020. It was noted that WG13 was requesting a subdivision of project 22.18.

#### 8.10 WG14 - C

Mr. Plum tabled Mr. Plauger's report, on his behalf. It is contained in N986. It was noted that WG14 may request a subdivision of its project 22.20.22, this in an effort to progress the work completed to date. Document VA-09 was then tabled and discussed. This document proposes that SC22 address certification/validation of C compilers. In response, it was stated that this issue is outside the scope of SC22 and that this was confirmed by JTC1 a few years ago.

At this point, it was suggested that the Secretariat distribute copies of TRs, developed by WG10, 11 and 12, to all SC22 Convenors.

#### 8.11 WG15 - POSIX

Mr. Isaak tabled his report which is contained in N1001. He reported that WG15 had recommended that document N967 be registered as a CD. He also noted that Mr. Jespersen (USA) had been nominated Project Editor for all WG15 projects.

#### 8.12 WG16 - Lisp

Mr. Queinnec tabled his report which is contained in N1042. He then made a brief presentation on current Lisp activities, following which he reported that agreement cannot be reached and therefore a first Working Draft for Lisp was two years away. As some MB (Canada & The Netherlands) expressed some concern about the lack of progress in Lisp standardization, it was proposed that the WG be asked to produce a WD for CD registration by the end of this year. To this point, some MB felt that not enough time was being given to the WG. As a result of further discussion, an agreement between MB was reached and a resolution prepared.

#### 8.13 WG17 - Prolog

Mr. Scowen tabled his report which is contained in N1002. He noted that WG17 had requested a subdivision of project 22.21 to include a) Core language, and b) Modules.

#### 8.14 WG18 - FIMS

Dr. Frantz tabled his report which is contained in N1023. It was noted that WG18 had recommended that the FIMS Working Draft (N1009) be registered as a CD.

Following a brief discussion of the JTC1 proposal to transfer the FIMS project from JTC1 to SC18, MB agreed that Dr. Frantz's position on this report, which is contained in N1024, should be



endorsed by SC22 and forwarded to JTC1.  
8.15 WG19 - VDM

Mr. Meek tabled Mr. Andrews' report, on his behalf. It is contained in N1047. It was noted that no action was required on the part of this committee.

#### 8.16 WG20 - Internationalization

Mr. Weaver tabled his report which is contained in N1039. It was noted that Mr. Weaver had some difficulty in organizing the first meeting of this WG. However, he reported that the first meeting was now scheduled and that he expected representation from at least five MB.

The Netherlands and France expressed their concerns about the delays in getting this work started.

#### 8.17 WG21 - C++

Mr. Carter tabled his report which is contained in N1004. It was noted that the ANSI C++ committee, X3J16, had approved "type I" development for the C++ standard. It was also noted that a project editor had been nominated for the C++ project.

### 9. PROJECT EDITORS REPORT

#### 9.1 PL/I

Dr. Klensin was not in attendance but his report, N1048 was tabled. Mr. Brannon, ITTF, explained the situation regarding the PL/I standard, ISO 6522. It was noted that a decision has to be made regarding its publication; the full text as an ISO standard or an endorsement notice of the ANSI standard.

#### 9.2 Guidelines for the Preparation of Prog. Language Standards

Mr. Meek tabled his report which is contained in N1021. It was noted that TR10176 had been published by ISO.

### 10. AD HOC MEETINGS

After some discussion, it was agreed that three Ad Hoc Groups were required, as follows:

Ad Hoc Group A - Chair F. Genuys will address

- Title, Scope of SC22, WG20 and WG21
- Proliferation of standards
- Proposed procedure for large NWI
- Interpretation

Ad Hoc Group B - Chair J. Van Wingen/W. Wakker will address

- WG11 Issues - CLID, CLIP, RPC
- SC2 Issues/relationship with coding

Ad Hoc Group C - Chair D. Joslin will address

- E-mail

## 11. ISSUES FOR DISCUSSION

### 11.1 Preparation of International Standards

Mr. Brannon, ITTF, outlined the procedure for the preparation of CDs and DIS. He noted that it was usual for ITTF to submit editorial comments during the DIS phase but that there is flexibility. He indicated that there were house rules and that he expects to publish these early next year. There was some discussion on SC22's request that line and paragraph numbering, white space and acknowledgement be permitted in ISO standards.

The second session of the plenary meeting adjourned at 18:55, Sept. 24 and re-convened at 14:00, Sept. 25.

The chairmen of the Ad Hoc Groups briefly reported on the discussion and the results of their meetings.

The third session of the plenary meeting adjourned at 15:05, Sept. 25 and re-convened at 2:00, Sept. 26.

The Chairmen of Ad Hoc Groups A, B and C presented the issues addressed by their respective Group and the results and recommendations prepared.

### 11.2 Synchronization of ISO/ANSI

COBOL: It was noted that document N1025 only contained editorial corrections to document N814.

Fortran: No discussion was required. The plan was not modified.

Ada: No discussion was required.

C: It was proposed that document N941 be adopted as the C language synchronization plan.

POSIX: It was proposed that document N897 be adopted as the revised synchronization plan for POSIX standards.

FIMS: It was proposed that document N944 be adopted as the FIMS standard synchronization plan.

### 11.3 SC22 Liaison Requirements

It was noted that Mr. Van Kingen (Netherlands) should be appointed as the SC22 liaison representative to SC2.

It was also noted that SC22 does not currently have a liaison representative for SC3, 15, 18, 21, 24, 26 and SC27.

It was pointed out that the current liaison arrangement was not working, as witnessed by the currently vacant positions.

There was some discussion regarding the liaison requirement to SC1

and it was suggested that the Voluntary standard, specifically part 15 of ISO 15922 be made available to all WG Convenors. It was also suggested that the Secretariat be asked to provide correction forms which could be used by SC22 members as a method of inputting their comments.

#### 11.4 Confirmation of WG Convenors

The confirmation/Reaffirmation of convenors was discussed and draft resolutions prepared.

#### 11.5 Nomination/Appointment of Project Editors

This item was discussed and draft resolutions prepared accordingly.

#### 11.6 Status of possible NWIs

The UK presented a candidate NWI on Syntactic Metalanguage. Following some discussion, it was agreed that the Secretariat initiate a SC22 consultative ballot to determine MB interest in this area. The UK stated that they had no intention of revising the UK standard on Syntactic Metalanguage unless it was approved as a NWI for SC22.

#### 11.7 Terms of Reference for WG20 and WG21

This item was addressed by an Ad Hoc Group and therefore did not require further discussion.

#### 11.8 Meeting Fees

Mr. Brannon stated that ISO prohibits meeting fees for its committees. Some MB suggested the Directives be revised to permit this. Mr. Isaac briefly outlined the IEEE POSIX situation. Following some further discussion, it was agreed that this issue was not a problem for SC22.

#### 11.9 Review of Title & Programme of Work of SC22

This item was addressed by an Ad Hoc Group and therefore did not require further discussion.

#### 11.10 PCTE

Denmark pointed out that the current version of the PCTE document, N945, made reference to old standards rather than current ISO standards. Mr. Isaac outlined briefly the PCTE standard. He explained that PCTE cannot be implemented on top of the POSIX standard. He also suggested that the PCTE standard should be published soon because the POSIX standard is not provided nor available elsewhere. He also pointed out the possibility of divergence, in the future, between the PCTE and POSIX standards.

France suggested that SC22 comments be forwarded to JTC1 for distribution to the JTC1 and when the PCTE standard is submitted to JTC1 for fast-track processing.



#### 11.11 AFNOR Contribution on Compliance with Language and Cross-Language Standards

France's contribution on this item was reviewed by Ad Hoc Group B and a draft resolution prepared.

#### 11.12 Proposed Procedure for Large NWI Proposals

JTC1's proposed procedure was discussed and some concerns were expressed about the additional work this might cause. It was also noted that SC22 already had a similar procedure for consideration of potential new projects for SC22.

#### 11.13 Interpretation of Standards

This item was discussed by Ad Hoc Group A and did not require further discussion.

At this point all draft resolutions were reviewed and discussed.

The third session of the plenary meeting adjourned at 19:10, Sept. 26 and re-convened at 1:20, Sept. 27.

### 12. SC22 ADMINISTRATIVE ISSUES

#### 12.1 Response to Letter Ballots

It was noted that SC22 WP do not respond on time to letter ballots. The Secretary urged WP to respond quickly to all letter ballots, before the closing date.

#### 12.2 Review of Five-Year Meeting Schedule

Future Plenary Meetings of SC22 are scheduled as follows:

Aug. 24/25, 1992	-	Finland (likely Tampere)
1993	-	France
1994	-	The Netherlands
1995	-	UK or USA

#### 12.3 E-Mail

This item was discussed by Ad Hoc Group C and did not require further discussion.

### 13. OTHER BUSINESS

There was no other issue raised for discussion.

### 14. APPROVAL OF RESOLUTIONS AND STATEMENT OF RESULTS

The Resolutions were approved as indicated in document N1053.

## 15. ADJOURNMENT

There being no further business for discussion, the Fourth Plenary Meeting of ISO/IEC JTC1 1992 was adjourned at 13:10, September 27, 1991.

Respectfully submitted



J.L. Côté,  
Secretariat, JTC1 1992

# P.J. Plauger

31 August 1991

J.L. Côté  
140 O'Connor St., 10th Floor  
Ottawa ON K1A 0R5  
CANADA

Dear Joe:

This letter addresses two matters - C validation suites and SC22 N1017 (TTCN Extensions). I just got the text for the former, I suspect too late to make the agenda for the Vienna SC22 meeting. Nevertheless, here it is.

During the ISO/JTC1/SC22/WG14 meeting in Copenhagen on November the 26th and 27th, 1990, a resolution was accepted by WG14 to send a letter to the SC22 secretariat expressing WG14's interest in the availability of procedures for validating conformance to the ISO C Standard.

It is in the interest of the committee to ensure that products claiming ISO-9899 conformance can be verified with qualified verification procedures, such that claims of standard adherence can be made, and accepted, with confidence.

With respect to the ANSI/ISO-C standard there are a number of validation suites available. NIST in the U.S. has selected an ANSI-C test suite that differs from the ANSI-C test suite selected by a consortium of English, French and Italian testing laboratories. Further, there are a number of other validation suites available from commercial companies.

Given the large amount of effort that went into the creation of a single C Standard it is important that testing procedures be harmonized in such a way that consistency, correctness, and completeness is ensured throughout the world.

WG14 would like this matter to be placed on the agenda of the next SC22 plenary meeting as "ISO-C Validation Procedures."

As for the second matter, I note from N1017 that SC21 is requesting a BNF description of the C programming language. They can find a BNF description of the syntax within ISO/IEC 9899, the C Standard.

Sincerely,



P.J. Plauger  
WG14 Convenor

2 Kenneth Street Bondi NSW 2026  
61-2-365-4939



# The WG11 Projects

Presentation of the WG11 Projects  
SC22 Plenary, Vienna  
September 1991

Brian Meek, Willem Wakker

# LANGUAGE INDEPENDENT STANDARDS

- Base standards (raw materials)
- Functional standards (add facilities)
- Generic standards (common definitions at language level)

## WG11 PROJECTS

- CLID: Common Language-Independent Datatypes
- LCAS: Language Compatible Arithmetic Standard
  - LCMPS: Language Compatible Mathematical Procedure Standard
  - LCCAPS: Language Compatible Complex Arithmetic and Procedure Standard
- CLIP: Common Language-Independent Procedure Calling (related to which is:)
  - RPC: Remote Procedure Call (using OSI)
- Guidelines for Language Bindings



## STATUS AND REFERENCES

CLID: Status: WD #5: First CD 11404  
Reference: SC22/N970

LCAS: Status: Version 3.1: First CD CD10967  
Reference: SC22/N935

LCMPS: CD registration: February 1993

LCCAPS: CD registration: October 1993

CLIP: WD#3, CD registration: November 1991  
Reference: WG11/N242

Guidelines: Guidelines for Language Binding  
Registration of TR 10182: December 1991

Overview: Language-Independent Standards  
(Meek, Barnetson, Wakker)  
Reference: WG11/N194R, version 2.1

## BINDING GUIDELINES

Questions for all SC22 WGs:

- Which of the guidelines particularly relate to bindings to your language?
- Do current bindings follow the guidelines?
- What will you do to ensure that future bindings to your language follow the guidelines?

## ARITHMETIC STANDARDS

Questions for all SC22 WGs:

- Does the definition conflict with anything in your language?
- Have you any particular requirements for the extensions (Mathematical Procedures, Complex Arithmetic)?
- Should your conforming processors also be required to conform to LCAS? (-> secondary standard)



# COMMON LANGUAGE-INDEPENDENT DATATYPES - CLID - 1

Datatype definitions + characterising operations

Classification:

- primitive
- subtypes
- generated
- declared.

Levels of abstraction

representational

-----

operational

linguistic

-----

abstract

# COMMON LANGUAGE-INDEPENDENT DATATYPES - CLID - 2

Datatypes, as defined in CLID WD#5 (First CD)

## Primitive datatypes

- Boolean
- State Enumerated Character
- Ordinal Date-and-Time
- Bit Integer
- Rational Scaled Real
- Complex Null
- Undefined Private Procedure

## Subtypes

- Range Selecting
- Excluding Extended Size
- Explicit

## Generated datatypes

- Choice Record Pointer Set List Bag Array
- Table Declared-Generator

## Declared datatypes

# COMMON LANGUAGE-INDEPENDENT DATATYPES - CLID - 3

## Two-valued Datatypes

- Boolean
  - true/false
  - and, or, not ...
- State
  - yes/no, on/off, ...
  - change
- Bit
  - 0, 1
  - +,

Pure subrange ??  
Modulo subrange??

## CLID and SC22 WGs

- Has CLID the datatypes you need?
- Can you see any mapping problems?

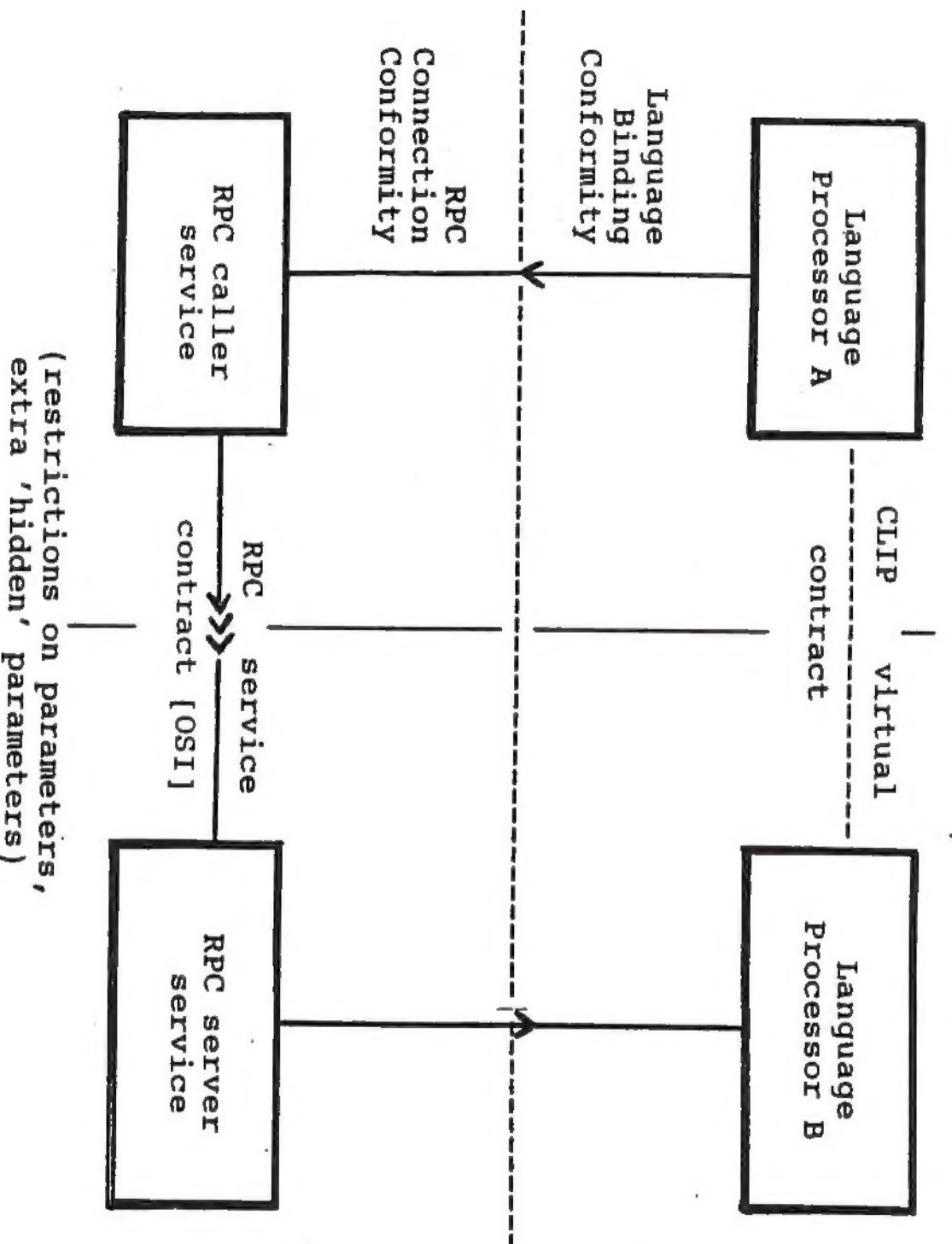
# COMMON LANGUAGE-INDEPENDENT PROCEDURE CALLING - CLIP - 1

## Relationship between CLIP and CLID

CLID describes datatypes and their properties.

CLIP defines procedure calling "mechanism" (at language level), in particular parameter passing; CLIP uses CLID for datatypes of parameters passed (and return values).

CLID has other uses too!





## COMMON LANGUAGE-INDEPENDENT PROCEDURE CALLING - CLIP - 2

CLIP and SC22 WGs

- Is the CLIP definition adequate for your needs?
- Can you see any mapping problems?
- Will your language processors be able to operate in client mode?
- Will your language processors be able to operate in server mode?

The last two questions also apply to RPC.